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Appl. No. 10/662,785
February 11, 2009

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REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 25, 26 and 28-40 are in the case.

I. THE OBVIOUSNESS REJECTIONS

Claims 25, 26 & 28-30 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. Patent 5,824,434 (Kawakami) in view of U.S. Patent 4,297,249 (Przybyla). Claim 31 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kawakami in view of Przybyla and further in view of U.S. Patent 4,086,392 (Mao). Claims 32-35 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kawakami in view of Przybyla and further in view of U.S. Patent 4,146,685 (Tucholski). Claims 36-40 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kawakami in view of Przybyla and Tucholski and further in view of U.S. Patent 5,688,616 (Yamawaki) and Mao. The rejections are respectfully traversed.

As claimed, the invention provides a method of preparing a zinc anode composition by (i) preparing a suspension of a first precipitate of zinc hydroxide; (ii) mixing a solution of an alkali salt of either a C₆-C₃₀ fatty acid or a C₆-C₃₀ alkyl sulfonic acid with the suspension of a first precipitate of zinc hydroxide to provide a mix; and then (iii) adding a solution of a salt of an acid to the mix to provide the composition as a second precipitate. The anode composition is a mixture of zinc hydroxide and an insoluble salt of a C₆-C₃₀ fatty acid that has an electrochemically active form of zinc.

HALL

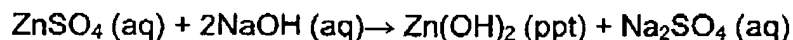
Appl. No. 10/662,785

February 11, 2009

The Action asserts that Kawakami discloses a process of making an anode electrode by adding a "precipitated zinc hydroxide" with a salt of an acid such as sodium phosphate. The action further states that Kawakami fails to suggest use of a fatty acid or graphite in making an electrode and relies on Przybyla for an alleged disclosure of addition of an alkali metal salt of a fatty acid, including the metal of potassium and a fatty acid of stearic acid, forming potassium stearate, with graphite being added to the mixture to act as a lubricant. Based on this, the Action concludes that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the electrode mix of Yano with the alkali metal salt of a fatty acid and graphite to aid in the lubrication of the powder as it is formed, which promotes a more consistent and uniform density to the electrode. This position is respectfully traversed.

The zinc anode composition (active mass) is prepared by the claimed method as an intimate mixture by two **sequential** precipitation processes. In this regard, attention is directed to paragraphs [0110] to [0112] (Example 1) and paragraph [0123] (Example 2) of the specification as published (US 2005/0026038). In order to clarify this point regarding the sequential nature of the steps, claim 25 has been amended by insertion of the word "then" after the conjunction "and" to emphasize that the steps of the method are performed sequentially.

The first precipitation step (described for example in Example 1 and Example 2) comprises the stoichiometric mixing of a solution in water of zinc sulphate (ZnSO_4) with a solution in water of sodium hydroxide (NaOH) to provide a first precipitate of zinc hydroxide (Zn(OH)_2), according to the equation:



Appl. No. 10/662,785

February 11, 2009

Zinc hydroxide (Zn(OH)) is amphoteric and will dissolve readily in both a solution of an acid and a solution of an alkali, such as sodium hydroxide (NaOH). Based on this, claim 25 has been amended to specify that the first step prepares a suspension of a first precipitate of zinc hydroxide (Zn(OH)_2).

Claim 25 has been further amended to specify that the second step requires the mixing of a solution of an alkali salt of a $\text{C}_6\text{-C}_{30}$ fatty acid with of the suspension of a first precipitate to provide a mix. The third step as amended requires adding of a solution of a salt of an acid to the mix. This addition of the salt of the acid causes the precipitation of the zinc hydroxide (Zn(OH)_2) and the insoluble salt of the $\text{C}_6\text{-C}_{30}$ fatty acid as a second precipitate (co-precipitate). The zinc hydroxide (Zn(OH)_2) and insoluble salt of the $\text{C}_6\text{-C}_{30}$ fatty acid are present as an intimate mixture in the co-precipitate. While not wishing to be bound by theory, it is believed that the advantageous characteristics of the active composition are attributable to the microcrystalline form of the intimate mixture provided by this co-precipitation.

The method as claimed is not suggested to one of ordinary skill by the cited references, either when taken singly or in any combination. In particular, the cited art does not suggest to one of ordinary skill a method that would provide an intimate mixture by co-precipitation.

The Action appears to be proposing the substitution of the alkali metal salt of Pryzbyla for the sodium phosphate and graphite of Kawakami to provide a modified electrode mix of Yano comprising a mixture of zinc hydroxide (Zn(OH)_2) and an insoluble salt of a $\text{C}_6\text{-C}_{30}$ fatty acid. In response, this combination of references simply

HALL

Appl. No. 10/662,785

February 11, 2009

does not suggest an intimate mixture of zinc hydroxide ($\text{Zn}(\text{OH})_2$) and an insoluble salt of a C_8 - C_{30} fatty acid formed as a co-precipitate.


An important feature of the claimed method that the active composition is formed by two sequential precipitation steps. This methodology is not suggested by the cited art. Pryzbyla is directed to the preparation of silver oxide powder for use in the cathode of an alkaline silver oxide galvanic cell. Kawakami is directed to the preparation of a negative pole (cathode) activating material. Yano is directed to the preparation of nickel electrode. The references address technical problems substantially different from the problem of the performance of zinc anodes in rechargeable batteries. There would therefore have been no motivation for one skilled in the art to combine these references in the manner suggested in the Action and, even if such a combination had been attempted (it is believed this would not have occurred to one of ordinary skill), the claimed methodology would not have resulted or have been rendered obvious thereby.

Absent any such motivation, it is clear that a *prima facie* case of obviousness has not been generated in this case. Withdrawal of the obviousness rejection is accordingly respectfully requested. Favorable action is awaited.

Respectfully submitted,

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